3.3.4.8 Great Lakes Beach

3.3.4.8.1 Community Overview

The Great Lakes Beach community occurs at the interface of land and water along the margins of Lakes Michigan and Superior, often in association with sparsely vegetated, semi-stabilized dune systems. Great Lakes beaches are extremely dynamic features, strongly influenced by water level changes and storm events. The lower beach is continually impacted by waves, the middle beach supports a dynamic plant community affected by wave action only during storms, and the upper beach, affected by wind-blown sand, wave spray, and only the most severe storms, supports a relatively diverse assemblage of plants.

The beach flora is typically sparse due to the scouring action of waves and ice. However, following several years of low water with few major storm events, the vegetation of the upper beach zone can become quite dense. Floristic composition can be an odd mix that includes globally rare endemics, as well as widespread weedy species adapted to quickly colonizing disturbed areas swept bare of competing vegetation. Exposed shorelines may be entirely unvegetated. Plants endemic to the shores of the Great Lakes, such as seaside spurge and American sea-rocket, are characteristic of some of the Lake Michigan beaches, especially during low water periods. Native associates may include silverweed, Baltic rush, and water horehound. The beaches of the Lake Superior region, though they are for the most part unvegetated, are important foraging, resting, and breeding areas for migratory and resident birds.

3.3.4.8.2 Vertebrate Species of Greatest Conservation Need Associated with Great Lakes Beach

Five vertebrate Species of Greatest Conservation Need were identified as significantly associated with Great Lakes beach (Table 3-108). There were not any vertebrate Species of Greatest Conservation Need that were identified as moderately associated with Great Lakes beach communities.

Table 3-108. Vertebrate Species of Greatest Conservation Need that are (or historically were) significantly associated with Great Lakes beach communities.

Birds
Piping Plover
Whimbrel
Dunlin
Caspian Tern
Common Tern

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-108 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both Great Lakes beach and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of Great Lakes beach in each of the Ecological Landscapes (Tables 3-109).

- Using the analysis described above, a species was further selected if it had both a significant association with Great Lakes beach and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes beach. These species are shown in Figure 3-21.

Table 3-109. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with Great Lakes beach communities and their association with Ecological Landscapes that support Great Lakes beach.

Great Lakes Beach	Birds (5)*				
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Piping Plover	Whimbrel	Dunlin	Caspian Tern	Common Tern
MAJOR					
Central Lake Michigan Coastal					
Northern Lake Michigan Coastal					
Superior Coastal Plain					
PRESENT (MINOR)					
Southern Lake Michigan Coastal					

Color Key

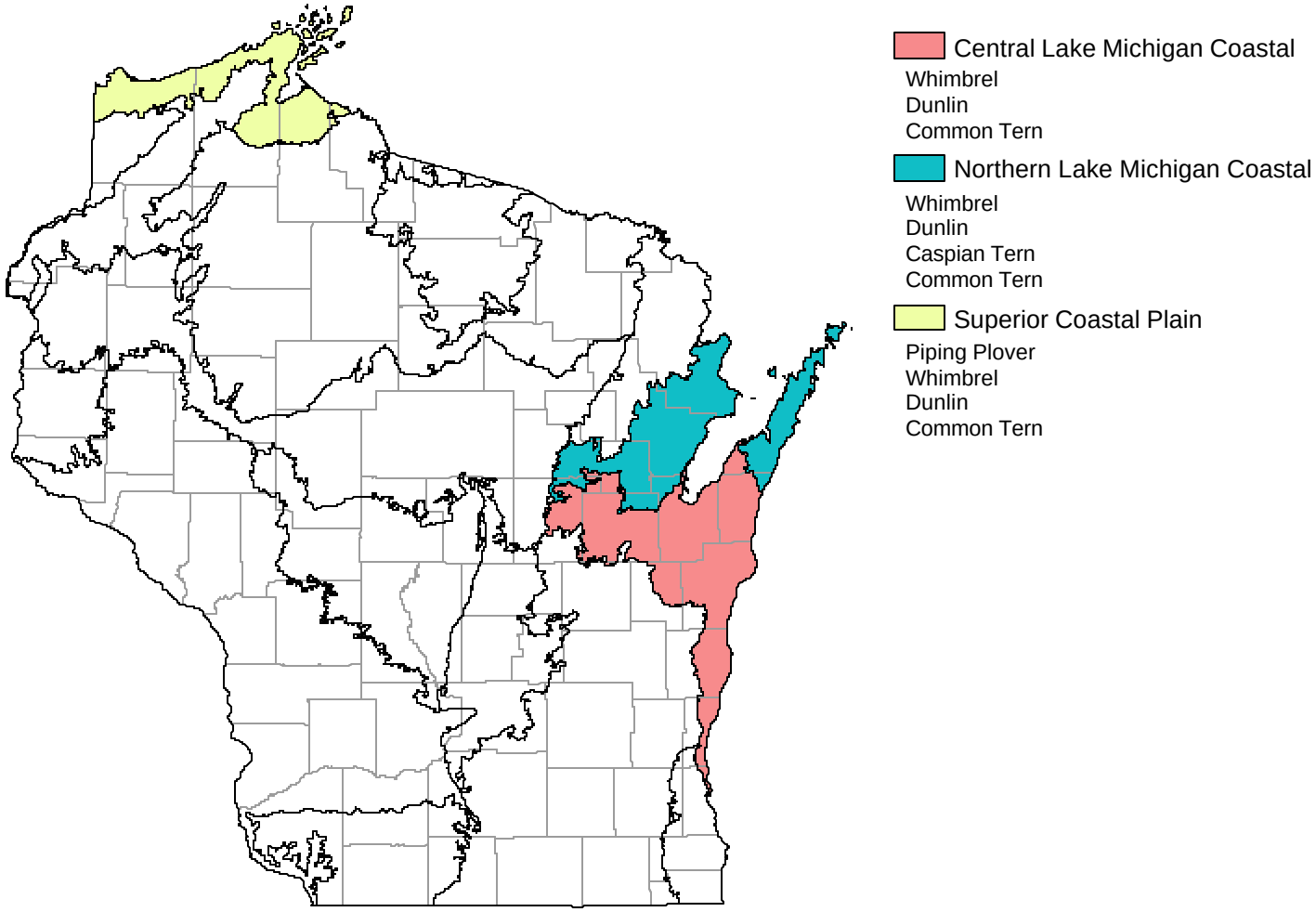
= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-21. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with Great Lakes beach *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes beach.



3.3.4.8.3 Threats and Priority Conservation Actions for Great Lakes Beach

3.3.4.8.3.1 Statewide Overview of Threats and Priority Conservation Actions for Great Lakes Beach

The following list of threats and priority conservation actions were identified for Great Lakes beach in Wisconsin. The threats and priority conservation actions described below apply to all Ecological landscapes in Section 3.3.4.8.3.2 unless otherwise indicated.

Threats and Issues

- Inadequate management of recreational use, including both motorized and foot traffic, can cause loss of vegetation or undue disturbance to sensitive wildlife species.
- Removal of woody debris, such as driftwood for fires and souvenirs, depletes invertebrate habitat.
- All-terrain vehicle (ATV) use crushes and uproots sensitive vegetation, in turn destroying animal habitat and leaving areas vulnerable to destructive levels of erosion.
- Sand mining can starve beaches and dunes of sand necessary for replenishment of dunes.
- Structures such as solid piers, seawalls, rip-rap, and jetties can interfere with the continual longshore drift needed to move sand along the lakeshore and replenish beaches.
- Artificial shoreline structures and hardening of the shoreline has interrupted the important process of longshore sediment transport that naturally erodes and replenishes sand beaches. Tons of sand must be brought in to artificially replenish beaches each year, primarily for recreational purposes.
- Vegetation removal, including vegetation that existed prior to decreases in lake levels.
- Use of herbicides can destroy populations of rare plants.
- Housing and other development can obliterate areas of this beach community, as well as fragment larger sites.
- Invasive species such as zebra mussel and (formerly) alewife can die by the millions, piling up in windrows several feet high and causing a major nuisance for beach users.
- Invasive plants such as purple loosestrife and common reed can invade beaches but are not generally persistent under normal disturbance regimes.
- High coliform bacteria counts constitute a major health threat.

Priority Conservation Actions

- Limiting of recreational activities, such as use of off-road vehicles and even hiking, may be necessary to prevent trampling of shallow-rooted vegetation and the introduction of invasive species.
- Lake level management should avoid prolonged periods of unusual, excessively high lake levels.
- Monitor affects of lake levels on the natural community and, in collaboration with other Great Lake states and provinces, develop options to address adverse changes as appropriate.
- Protect beach areas, including piping plover nesting areas, using "Environmental Area" (or "Critical Dune Area" if dunes are present) designations (as currently used in Michigan).
- Educate landowners about the adverse affects of activities such as sand mining, excessive mowing, and raking or otherwise uprooting vegetation, including endangered species, from middle-beach and upper-beach areas. Establish conservation incentives and restrictions as needed.
- Implement or continue voluntary programs to monitor for and aggressively eliminate invasive species.
- Work with willing private landowners on agreements to protect relatively undisturbed areas where possible.

3.3.4.8.3.2 Additional Considerations for Great Lakes Beach by Ecological Landscape.

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of Great Lakes beach exist. Those

considerations are described below and are in addition to the statewide threats and priority conservation actions for Great Lakes beach found in Section 3.3.4.8.3.1.

Additional Considerations for Great Lakes Beach in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management

Central Lake Michigan Coastal

Point Beach State Forest protects 6 miles of beaches and dunes, which are associated with a complex system of ridges and swales that parallel the Lake Michigan shoreline. Harrington Beach and Kohler-Andrae State Parks protect additional undeveloped shoreline habitats but receive very heavy human visitation during the summer months.

Northern Lake Michigan Coastal

Several examples occur along the west shore of Green Bay, including at Seagull Bar and Peshtigo Harbor. Whitefish Dunes, Rock Island, and Newport State Parks contain important examples of this habitat. Significant populations of rare plants are known from several of these sites.

Superior Coastal Plain

Most beaches on Lake Superior are associated with Great Lakes coastal landforms such as barrier spits, baymouth bars, tombolos, and cuspate forelands. The Apostle Islands National Lakeshore protects several miles of undeveloped beach. At several locations small beaches arch between rocky headlands. The beaches of the Apostle Islands and Chequamegon Bay are important staging areas for migratory birds, and provide critical nesting habitat for shorebirds. Wilderness designation, currently under consideration at the National Lakeshore, could add further protection to several of these sites.

Bark Bay Slough, Port Wing Boreal Forest, and Lost Creek Bog are State Natural Areas managed by the WDNR that feature beaches protected by sand bars. Significant beaches occur on tribal lands under the stewardship of the Bad River and Red Cliff bands of Lake Superior Ojibwa. A more disturbed but extensive area of Great Lakes beach occurs at Wisconsin Point, a coastal barrier spit at the mouth of the St. Louis River. Additional beach areas lie at scattered spots along the southern Lake Superior coast from Wisconsin Point to the Montreal River, nearly 150 miles to the east.

Additional Considerations for Great Lakes Beach in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management

No Ecological Landscapes with important opportunities were identified. However, Great Lakes beach was formerly an important shoreline feature in the Southern Lake Michigan Coastal Ecological Landscape, especially near the present day cities of Kenosha, Racine, and Milwaukee. Where beaches still occur in these locales, they have been affected by many developments and receive heavy human visitation during the summer months. Even so, they can provide important habitat for migratory birds.